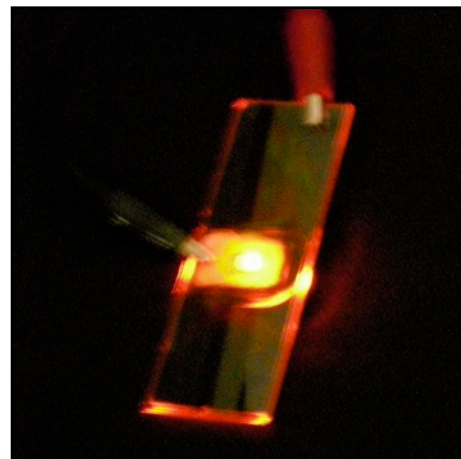


OLED Science Kit For Businesses & Educators Product Data Sheet

Version 1.0

Organic light emitting diodes (OLEDs) are just one example of the next generation of electronics that comes under the heading of Printed Electronics.

This organic light emitting diode (OLED) science kit enables businesses and educators to manufacture working proof-of-principle OLEDs. Users can experiment with OLED chemistry, physical structures and control electronics.



Benefits Of OLED Science Kit

1. Make working OLED device in under two hours
2. No expensive, specialist equipment necessary
3. Does not require an ultra-clean environment
4. Alter OLED chemistry with kit
5. Experiment with OLED device structure
6. Demonstrate properties of OLED's individual layers
7. Evaluate control electronics
8. Equivalent colour LED for OLED/LED comparison
9. Technical support to get kit working and to develop applications

How The OLED Science Kit Works

OLEDs are multi-layered light emissive devices that operate of a low applied voltage, typically 3 - 12Vdc. In an OLED's simplest form it is three layer and their most complex, there are five, or more layers.

The OLED in this kit is a three layer device: anode, emissive layer, cathode. These layers are sandwiched between a glass substrate and an encapsulation layer. These are to keep oxygen and water vapour off the device.

The anode is indium tin oxide (ITO), that has been pre-deposited onto a glass substrate. The emissive layer is spin-coated* onto the ITO. By altering the spin-coating speed and/or the emissive layer chemistry, the thickness of the emissive layer can be experimented with. On top of the emissive layer, the cathode is deposited. There are few choices available for the cathode, since it must be a material with a low work function. A suitable eutectic alloy is provided in the kit.

Electrodes for connectivity to the anode and cathode are essential and the device should be encapsulated. An alternative encapsulating methodology is to use ultraviolet curing**.

Once made, the OLED device should work instantly. The better the manufacturing quality control is (cleanliness), the better the device will be and the longer it will last. The operational lifetime can be expected to last 100 hours and the storage lifetime can be six months, or more.

* *Polymertronics retails spin-coaters for the substrates that are supplied in the kits*

** *Polymertronics retails an ultraviolet curing system and provides ultraviolet curing expertise*

OLED Science Kit Contents

Part	Description
OLED emissive layer fluid	Orange colour light emissive OLED fluid
OLED thinner fluid	Fluid to adjust the materials thickness
2 x ITO substrate	Pre-coated indium tin oxide on 25 x 75 mm glass substrate
OLED conductive layer fluid	Hole transport layer fluid
Eutectic alloy	Low work function eutectic metal alloy for the cathode
Insulating layer	Layer to give OLED a desired shape.
Encapsulation fluid	Fast curing encapsulation fluid
Gloves	To be worn when manufacturing devices
Pipettes	Used to draw the OLED fluids onto the substrate
OLED electronic driver	Proprietary OLED driver
Instruction manual	Explanation and instruction manual for OLED manufacture

Possible Investigations Using The OLED Science Kit

1. Add different amount of OLED thinner fluid to observe the effect of OLED thicknesses for light intensity, applied voltage and reliability
2. Vary the spin coater speed to observe the effect on the OLED
3. Make different sized OLEDs
4. Measure the power per unit are of OLED
5. Compare OLED versus LED technologies:
 - A. Power
 - B. Emissive bandwidth
 - C. Light intensity
 - D. Viewing angle



Polymertronics is the one-stop-shop for OLEDs

For proof-of-principle OLED technology and advanced, intelligent electronics, Polymertronics provides everything that you will need:

1. OLED Science Kits for making proof-of-principle OLEDs
2. OLED fluids for spin coating
3. Inkjet printable OLED fluids
4. Ultraviolet curable encapsulation fluids
5. Free OLED electronic driver schematics
6. Spin-coaters
7. Ultraviolet curers
8. Ultraviolet curing expertise for plastic electronics
9. Prototype product development

OLED proof-of-principle suppliers and expertise:

www.polymertronics.com

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